



# BATTERY SPOT WELDER

Capacitor Energy Storage Precision Welding Machine

USS-BSW00008



## User Manual

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Thank you for choosing the U.S. Solid battery spot welder.

Please check the package firstly to make sure it is not damaged in transit before use. For questions, please contact us at [service@ussolid.com](mailto:service@ussolid.com) or 1-800-243-5428(M-F: 9:00 am-5:00 pm EST) for help.

To ensure the best user experience, we recommend reading the user manual thoroughly and keeping it for future reference.

## Product Introduction

- The newly designed U.S. Solid USS-BSW00008 high-frequency inversion battery spot welder equips with the six super capacitors for energy storage and power supply for pulse welding. Unlike traditional AC transformer spot welders, it does not cause any interference to the electric circuit, eliminating tripping problems.
- The low-consumption super energy-gathered millisecond pulse technology maximizes the pulse energy output in millisecond-level time, the welding spot is excellent and no damage to the battery.
- 42KW/7000A Super Welding Output - Supporting the large-capacity power battery of copper/aluminum terminals welding.
- LED Display Screen & Controlling Buttons - Real-time capacitor voltage, charging current, power grade and actual welding current parameters are monitored. Convenient parameter adjustments can be made by pressing the buttons.
- 'AT/MT' Two Welding Modes - 'AT' automatic mode for quick welding and 'MT' foot pedal controlling mode for beginners or precise welding.
- Multiple welding pen accessories are available for different welding requirements. *(Please notice that the package only contains the default 75A-Plus welding pen for large-capacity power battery welding, additional purchase required for other-types welding pen)*
- **The newly added 'Welding Spot Resistance Milliohm Meter' function** allows for quick measurement of the resistance between the connecting piece and electrodes of the battery after spot welding. The lower the resistance, the better the welding effect, and it provides a convenient way to check for poor welding spots.

## Usage Scenarios

Lithium battery pack quick building & maintenance for electric appliances, electric vehicles, etc.

Especially designed for the large-capacity power battery aluminum/copper terminals welding.

Circuit Board/Hardware/Electronic Components/Lead Wire spot welding.

(Tips: Different welding pen accessories additional purchase required, the package only includes the 75A-Plus welding pen for large battery welding).

Widely used for the common metal welding like stainless steel, iron, nickel, copper, aluminum, titanium, molybdenum, etc.

## Welding Reference Table

Material	Thickness	Surface	Power Grade	Notes
copper	0.15mm	copper	40t	with flux
copper	0.4mm	copper	85t	with flux
nickel	0.1mm	aluminum	20t	/
nickel	0.4mm	aluminum	85t	/
nickel-aluminum	0.15mm	aluminum	30t	/
nickel-aluminum	0.3mm	aluminum	65t	/
copper	0.1mm	aluminum	55t	/
copper	0.2mm	aluminum	85t	/
copper	0.2mm	stainless steel	35t	/

### Notes:

1. The table is for reference only, the actual welding effect also influenced by the material size, surface flatness, oxidation condition, etc.

2. The table lists the example data of large-capacity power battery welding situation only, welcome to contact us for more welding scenarios consultation or communication.

## Product Parameters

Model	USS-BSW00008	Welding Mode	AT/MT
Machine Input	AC 110 V 50/60 Hz	Pulse Delay Time	300 ms
Charging Current	5-20 A	Wire Sectional Area(75A-Plus)	50 mm <sup>2</sup>
Charging Time	≤ 18 mins	Welding Electrodes Size(75A-Plus)	Φ3mm x 15mm
Max Welding Voltage	6 V	Welding Pen Resistance(75A-Plus)	0.3 mΩ
Max Welding Current	7000 A	Milliohm Meter Measuring Range	0-200 mΩ
Max Welding Power	42 KW	Product Size	9.7x5.5x8.5 inches
Max Welding Energy	840 J	Product Weight	14 lbs
Pulse Time	20 ms	Package Size	14.6x9.8x14.2 inches
Power Adjustment	0-99 t (0.2ms/t)	Package Weight	20 lbs

## Package List

- Main Machine x 1 pc
- Power Cord x 1 pc
- Milliohm Resistance Measuring Pen x 1 pc
- 75A-Plus Separated-style Welding Pen x 1 pc
- 75A-Plus Repalcing Welding Electrodes x 1 pair
- 75A-Plus Set Screws x 1 pair
- Foot Pedal Switch x 1 pc
- Pure Nickel - 0.15 x 8 x 100mm x 20 pcs
- Nickel-aluminum - 0.15 x 10 x 100mm x 20 pcs
- Pure Copper - 0.15 x 10mm x 5 m

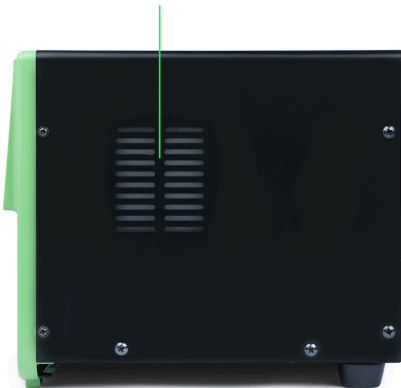
## Product Diagram

### Front



### Side

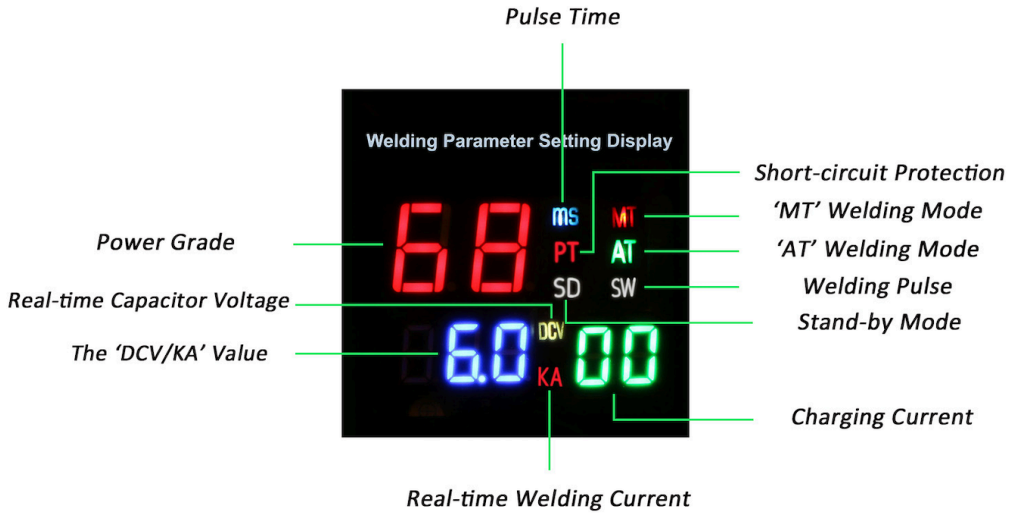
The Heat Dissipation Vent



### Back



## Screen



- Power Grade - 0-99 t (0.2 ms/t)
- 'ms' - Pulse Time(20 ms)
- 'MT' - Foot Pedal Controlling Mode
- 'AT' - Automatic Induction Triggering Mode
- 'SW' - Instantly lights up when welding pulse is triggered
- 'SD' - Lights up after the machine is on standby for 30 mins
- 'PT' - Lights up when there is a short circuit in the machine
- Charging Current - Real-time Charging Current(5-20 A)
- 'DCV' - Real-time Capacitor Voltage(0-6 V)
- 'KA' - Real-time Output Current

## How To Use

### Usage Diagram



1. Plug in the power cord and connect to the right power supply.  
*(Tips: Confirm the power supply and plug type)*



2. Switch on the machine.



3. Wait for the capacitor voltage to reach 5.6-6V.  
*(Tips: 1. The machine has been discharged to the lowest voltage before leaving the factory for safety transportation, charge the machine firstly for first time use.  
2. Machine will make normal sounds when charging.)*



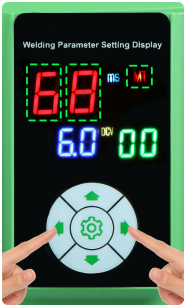
4. Plug in the 75A-plus separated-style welding pen.



5. Secure the connection by screwing in the set screws tightly.



6. Press the '⚙️' button to start the parameter setting.



7. Press the '←→' buttons to switch the power grade adjustment or welding modes selection.



8. Press the '↑↓' buttons to adjust the power grade values or select 'AT/MT' welding modes.



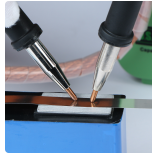
9. Press the '⚙️' button again to save all settings and exit.  
*(Tips: The parameter settings are not saved when screen displays the flickering values, press the '⚙️' button to confirm the adjustment.)*

10. Shut down the machine when not using and unplug it.

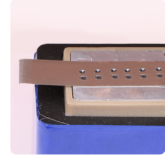
## 'AT' - Automatic Welding Mode



Set the 'AT' mode



Apply enough and uniform pressure on two welding electrodes, the welding pulse will be triggered in 300ms delayed time



Check the welding effect

## 'MT' - Foot Pedal Controlling Mode



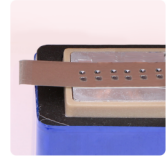
Set the 'MT' mode



Plug in the foot pedal switch



Apply enough and uniform pressure on two welding electrodes, step on the pedal switch and welding pulse is triggered instantly

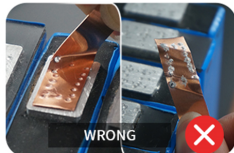


Check the welding effect

### Notes:

1. 'AT' automatic mode is for quick welding and 'MT' foot pedal controlling mode is for the beginner or precise welding. The welding effect needs to be checked in AT quick welding mode to avoid the neglected bad welding spots.
2. Apply enough and uniform pressure on two welding electrodes to get the welding pieces and welding surface fully contacted for optimal welding effect. (Apply different pressure according to different materials and thickness).
3. Not enough pressure applied on the welding electrodes or slow operation exceeding the 300ms pulse delayed time in 'AT' mode will cause large sparks.

## Special Notice for Welding Effect Test of Large-capacity Batteries of Aluminum Terminals



Because the aluminum metal is softer than stainless steel and copper, so the welding effect test method of batteries of aluminum terminals is different. The welding pieces should be flat pulled but not torn off because the metal joints cannot hold the pulling force.



## Welding Spot Resistance Milliohm Meter



1. Press the '⏻' button to turn on the function



2. Plug in the milliohm measuring pen



3. Measure the resistance between the connecting piece and the electrode of battery after spot welding

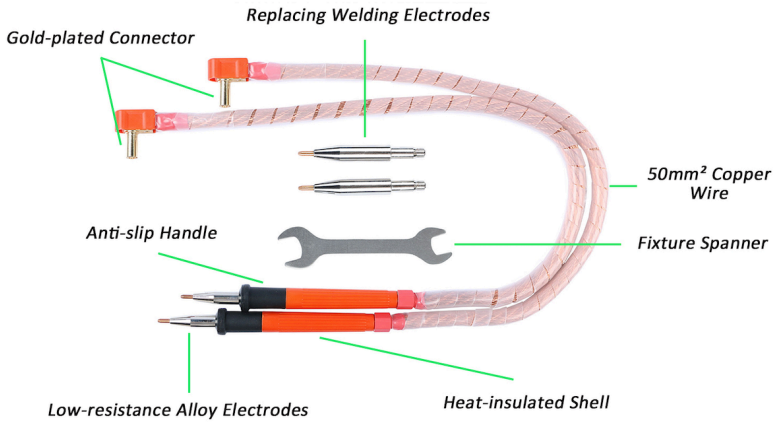
4. The resistance is 0.07mΩ (0-200 mΩ)

### Notes:

1. Assisting in efficiently inspecting poor welding spots in 'AT' welding mode.
2. Electriferous objects like battery cannot be measured.
3. The lower resistance, the better welding effect, which means the better battery pack performance.

## 75A-Plus Separated-style Welding Pen

### Diagram



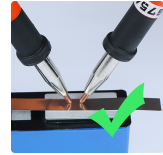
### Usage Notices



Never contact the two electrodes



Never contact the positive and negative terminals at the same time



Correct operation

### Welding Electrodes Replacement



Fix the welding pen tail



Use plier to twist off the electrodes



Replace new electrodes



Twist and tighten the connection

#### Notes:

1. Clean or replace the welding electrodes regularly for optimal welding effect.
2. Lubricating oil can be smeared on the welding electrodes to prevent oxidization.
3. The package only contains the default 75A-Plus welding pen for large-capacity power battery welding, additional purchase required for other-types welding pen.

## Usage Notices

- Precious metals like gold, silver and jewelry cannot be welded.
- Never contact the two welding electrodes of welding pen.
- Never contact the battery positive and negative terminals at the same time.
- Do not set the power grade too high, otherwise will cause large sparks and penetrate the battery.
- Welding sparks may occur, wear goggles and keep a safe distance.
- Charge the machine firstly for first time use and wait the capacitor voltage reaches 5.6-6V.  
*(The machine has been discharged to the lowest voltage before leaving the factory for safety transportation).*
- ‘AT’ automatic mode is for quick welding and ‘MT’ foot pedal controlling mode is for the beginner or precise welding. The welding effect needs to be checked in AT quick welding mode to avoid the neglected bad welding spots.
- Apply enough and uniform pressure on two welding electrodes to get the welding pieces and welding surface fully contacted for optimal welding effect.  
*(Apply different pressure according to different materials and thickness).*
- Keep the welding pieces and welding surface clean and flat to avoid poor welding effect.
- Clean or replace the welding electrodes regularly for optimal welding effect.
- Twist and tighten the welding electrodes firmly for best conductivity.
- Do not take down the plastic shell of the welding pen.
- Lubricating oil can be smeared on the welding electrodes to prevent oxidization.
- The package list only contains the default 75A-Plus welding pen for large-capacity power battery welding, additional purchase required for other-types welding pen.
- Only use the welding accessories(welding pen, electrodes) from U.S. Solid.
- Only charge the machine with the original power cord.
- Keep the machine plugged in for working.
- Normal meter cannot measure the actual instant welding current(pulse).
- The milliohm meter function cannot measure the electriferous object(battery).
- Shut down the machine when not using and unplug it.
- Do not take part and modify the machine personally, doing so may cause danger.
- Do not use the machine if lacking of related knowledge and experience.
- Do not use in inflammable, explosive dangerous environments.
- Keep out of reach of children.

### **Special Notice for Welding Effect Test of Large-capacity Batteries of Aluminum Terminals**

Because the aluminum metal is softer than stainless steel and copper, so the welding effect test method of batteries of aluminum terminals is different. The welding pieces should be flat pulled but not torn off because the metal joints cannot hold the pulling force.

## Troubleshooting Table

Problems	Possible Causes	Solutions
Error Type - 'E01' (welding signal triggered but no welding current)	welding material not supported	check the material
	welding material too thick	check the thickness
	the welding pen electrodes, welding pieces and welding surface are not clean, stains or oxides exist;	clean the welding components or replace new welding electrodes
	internal circuit board broken (machine short circuit: contact the welding pen two electrodes; contact the battery positive and negative terminals at the same time)	replace new circuit board
Error Type - 'E02' (welding signal continuously triggered in short time)	step on the pedal switch always or too fast	step by interval time
	the pedal switch is broken(stuck)	repair or replace new pedal switch
Weak Welding	low capacitor voltage	charge and wait the voltage reaches 5.6-6V
	set the power grade too low	turn up the power grade
	welding pen or its welding electrodes not plugged in firmly	check the connection
Large Welding Spark	not enough pressure applied on the welding pieces	apply enough pressure
	exceed the pulse delayed time	quicken the welding operation
Welding Spots Not Uniform	not uniform pressure applied on the welding pieces	apply uniform pressure
Battery Penetrated	set the power grade too high	turn down the power grade

For troubles cannot solved by this table or needing of replacement accessories, please contact us at [service@ussolid.com](mailto:service@ussolid.com) for help.

Please provide the pictures or video of the broken machine if possible, which will help us analyze and solve the problems.

## **One Year Limited Warranty**

U.S. Solid warrants your battery spot welder to be free from defects in materials or workmanship under normal use and service for one year from the date of original purchase. All defective devices under normal use will be repaired or replaced for free. All parts, except for consumable welding accessories, will be covered under this warranty.

This warranty shall not apply to any U.S. Solid battery spot welder that:

- *is defective due to misuse, neglect or accident;*
- *is used for a purpose that the device is not designed for;*
- *has been repaired or altered in a way that adversely affect its performance and reliability;*
- *is serviced by unauthorized parties;*
- *is intended for commercial or professional use.*

This warranty is only applicable to the original purchaser.

U.S. Solid would not assume or authorize any person to assume any other liability in connection with its product. No responsibility is assumed for any consequential damages that may result from the use of a U.S. Solid product, nor for damages due to accident, abuse, lack of care, affixing of unauthorized attachment, loss of parts or subjecting this unit to any but the specified voltage.

If your product is broken and meets the warranty requirements, please email us to [service@ussolid.com](mailto:service@ussolid.com) with the original receipt showing the purchase date and the description of the problem for customer service.

Please note should any return or replacement be incurred, transportation and packing costs are the responsibility of the customer.

This warranty gives you specific legal rights, you may have other rights that may vary from state to state.

**For More High-quality Products From U.S. Solid, Please Visit**  
**[www.ussolid.com](http://www.ussolid.com)**

## **Contact Info**

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